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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/739,582	12/15/2000	Steven Teig	SPLX.P0005	3530

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EXAMINER

CHU, CHRIS C

ART UNIT	PAPER NUMBER
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2815

DATE MAILED: 01/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

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**Office Action Summary**

Application No.

09/739,582

Applicant(s)

TEIG ET AL.

Examiner

Chris C. Chu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 16 - 39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16 - 39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Preliminary Amendment***

1. The preliminary amendment filed on June 20, 2001 has been received and entered in this office action.

### ***Specification***

2. The disclosure is objected to because of the following informalities:  
  
On page 2 of the preliminary amendment, line 9, fills a number in the blank.  
  
Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 16 ~ 39 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 16 and 28, the limitations "said integrated circuit" in line 3, "said metal layer" in line 9, and "said self contained layout" in line 11 lack antecedent basis.

In claims 17 and 29, it can not be determined what applicant regards as "said self contained layout section."

*Claim Rejections - 35 USC § 102*

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

6. Claims 16 ~ 23, 25 ~ 35, and 37 ~ 39 are rejected under 35 U.S.C. 102(e) as being anticipated by Igarashi et al.

Note Fig. 20 of Igarashi et al., where he/she shows an integrated circuit comprising: a plurality of metal layers (see fig. 20) comprising a plurality of conductors to interconnect components in said integrated circuit (see Fig. 20), said metal layers comprising: a first metal layer group (601, 602, and 603) comprising at least one metal layer (601), said metal layer (601) in said first metal layer group (601, 602, and 603) comprising at least one self contained layout section comprising conductors deposited in a preferred Manhattan direction (see Fig. 20), wherein a preferred direction defines a direction, relative to the integrated circuit boundaries, for at least fifty percent of conductors (see Fig. 20); and a second metal layer group (604 and

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605) comprising at least one metal layer (604 and see Fig. 20), said metal layer (604) in said second metal layer group (604 and 605) comprising a plurality of conductors deposited in a preferred diagonal direction in a portion of the metal layer directly adjacent to said self contained layout (see Fig. 20).

Regarding claim 28, the method steps are disclosed by Igarashi et al. for the same reasons provided above in the device claim 16.

Regarding claims 17 and 29, note Fig. 20 of Igarashi et al., where he/she shows said self contained layout section is independent of a layout for said second metal layer group (see Fig. 20).

Regarding claims 18 and 30, note Fig. 20 of Igarashi et al., where he/she shows a plurality of self contained layout sections in said first metal layer (see Fig. 20 and Fig. 10B).

Regarding claims 19 and 31, note Fig. 20 of Igarashi et al., where he/she shows at least one of said self contained layout sections comprise a wiring direction perpendicular to a wiring direction of a second one of said self contained layout sections (see Fig. 10B and Figs. 6A ~ 6C).

Regarding claims 20 and 32, note Fig. 20 of Igarashi et al., where he/she shows said self contained layout section comprises an entire one of said metal layer in said first metal layer group (see Fig. 20).

Regarding claims 21 and 33, note Fig. 20 of Igarashi et al., where he/she shows said first metal layer group (601, 602, and 603) comprises three metal layers (see Fig. 20).

Regarding claims 22 and 34, note Fig. 20 of Igarashi et al., where he/she shows said three metal layers (601, 602, and 603) each comprise conductors deposited in preferred Manhattan directions (see Fig. 20), wherein: said first metal layer (601) comprises a preferred Manhattan

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direction complementary of a preferred Manhattan direction of said second metal layer (602); and said second metal layer (602) comprises a preferred Manhattan direction complementary of a preferred Manhattan direction of said third metal layer (603 and see Fig. 20).

Regarding claims 23 and 35, note Fig. 20 of Igarashi et al., where he/she shows said diagonal direction comprises a direction 45 degrees relative to said integrated circuit boundaries (see Fig. 20).

Regarding claims 25 and 37, Igarashi et al. discloses said self contained layout comprises a layout for a memory block (read column 5, lines 38 ~ 43 and see Fig. 25A).

Regarding claims 26 and 38, note Fig. 20 of Igarashi et al., where he/she shows said self contained layout comprises a layout with a design independent from said layout of said second metal layer group (see Fig. 20).

Regarding claims 27 and 39, note Fig. 20 of Igarashi et al., where he/she shows said self contained layout section comprises a section less than 10 percent of the entire area of said metal layer (see Fig. 10B).

### *Claim Rejections - 35 USC § 103*

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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8. Claims 24 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Igarashi et al. in view of Funaki et al.

Igarashi et al. discloses the claimed invention except for said diagonal direction comprising a direction 60 degrees relative to said integrated circuit boundaries. However, Funaki et al. discloses said diagonal direction comprising a direction 60 degrees relative to said integrated circuit boundaries (read column 12, lines 1 ~ 45). Thus, it would have been obvious to one of ordinary skill in the art at the time when the invention was made to modify Igarashi et al. by including the 60 degree for diagonal direction as taught by Funaki et al. The ordinary artisan would have been motivated to modify Igarashi et al. in the manner described above for at least the purpose of decreasing resistance in contact regions.

### *Conclusion*

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Fuchida et al., Weber, Bezama et al., Rostoker et al., and Fujiwara et al. disclose a semiconductor device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chris C. Chu whose telephone number is (703) 305-6194. The examiner can normally be reached on M-F (10:30 - 7:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (703) 308-1690. The fax phone numbers for the

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organization where this application or proceeding is assigned are (703) 308-7382 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Chris C. Chu  
Examiner  
Art Unit 2815

c.c.  
December 27, 2001



**EDDIE LEE**  
**SUPERVISORY PATENT EXAMINER**  
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